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September 7, 2003

Commissioner Robert Pernell
Commissioner Art Rosenfeld
Energy Efficiency Committee

Bill Pennington

California Energy Commission
1516 Ninth Street
Sacramento, Ca 95814-5512

RE: COMMENTS ON 2005 BUILDING ENERGY EFFICIENCY STANDARDS; 45-DAY LANGUAGE EXPRESS TERMS

Dear Commissioners and Bill Pennington:

Please accept these comments and recommendations to modify language contained in the 45-day express terms:

- ***Standards for Residential and Nonresidential Buildings—Express Terms 54-Day Language, July 2003***

1. Section 101 Definitions and Rules of Construction

   Recommendation: Move all references of specific testing standards (i.e., ANSI, ARI, ASTM, NFRC, UL) out of this section and into Appendix 1-A (Standards and Documents Referenced In Energy Efficiency Regulations) as the detailed listing of these standards in this section only makes the section less useful and more cumbersome for the building community to find definitions covering standard's and compliance terms.

2. Section 124(g) Porous Inner Core Flex Duct

   Recommendation: Delete this section as agreed upon via a conference call with representatives of duct manufacturers (JP Lamborn and Casco) and staff based upon discussions supporting major performance concerns for this particular type of duct are in residential buildings as opposed to nonresidential buildings.

3. Section 150(m) Air-Distribution System Ducts, Plenums, and Fans; 1 CMC Compliance

   Recommendation: Change the minimum duct R-value requirement from R4.2 to R6. There has been considerable discussion with representatives of the HVAC industry, duct manufacturers, and CBIA to identify and corral costs associated with increased duct R-values but the fact remains that all the analysis clearly supports increased duct R-values. We support a process to "bridge" residential builder acceptance for higher duct R-values but because proposed changes for duct R-values in the nonresidential standards are R8 and remain at R4.2 for residential buildings duct manufacturers and duct distributors will be required to stock and inventory a myriad of product types and R-values once these standards become effective. Ultimately, this increases their costs, which are passed along to the installer and building community. Other states in the nation have or will be moving to adoption of duct R-values much higher than R4.2. Many builders in California also build elsewhere. Likewise, duct manufacturers provide product for California and other states as well. The economies of scale for manufacturing and installing like products have not been accurately accounted for in this process. Minimizing the range and type of duct products and R-values to R6 will greatly increase market acceptance and result in greater savings for homeowners and statewide energy use.

4. Section 151 Table 151-C, Alternative Component Package D

   Recommendation: Change the required duct R-value in climate zones 6, 7, and 8 from R4.2 to R6. See reasons stated above in #3.

- ***Residential ACM—RH Appendix; High Quality Insulation Installation Procedures***

1. RH 2. Terminology, Voids

   Recommendation: Voids can also be created from improper spray or blown wall systems, resulting in wall cavities filled with insufficient insulation for the proper R-value. Add the additional language to this section:

   <u>Improper spraying or blowing of insulation in wall cavities can result in areas with insufficient insulation not meeting the specified installed density and R-value. Wall and cathedral ceiling cavity areas where cellulose insulation has fallen away shall be filled with insulation. Large depressions in netting or material covering blown walls and cathedral ceilings with fiberglass shall be filled with insulation.</u>

2. RH 3. Raised Floors and Floors Over Garages

Recommendation: Add the following language:

"If the facing is faced, the facing shall be placed toward the living space and be in contact with the underside of the floor sheathing."

3. RH 5. Ceiling and Roof Insulation; RH 5.1 Batt Insulation

   Recommendation: Add the following language:

   "Insulation shall cover all IC-rated recessed lighting fixtures."

4. RH 5.2 Loose-Fill Ceiling Insulation; RH 5.2.1 General Requirements

   Recommendation: Comment on language stating:

   "All recessed light fixtures that penetrate the ceiling shall be IC and air tight (AT) rated…"—There may be a situation where compliance is being shown for an addition with the existing building. In this case, compliance could be taken for additional insulation installed in the existing building as well and is the most likely area to experience non-IC rated recessed lights. Clarification for this compliance method should be stated. One option is to only allow the credit for the High Quality Insulation Installation Procedure to be used with new construction, such as a new building or new addition.

5. RH 5.2 Loose-Fill Ceiling Insulation; RH 5.2.1 General Requirements

   Recommendation: It's inappropriate to expect this new procedure to be successful unless installers, and ultimately builders, know exactly what's expected of them. The current proposed language implies some mechanism for installing the correct density and R-value and some verification for it by a HERS rater. The procedure should be consistent for both cellulose and fiberglass insulation and should be specific enough that the installer and HERS rater know what's expected to meet compliance expectations. Add the following language:

   "The HERS rater shall verify that the manufacturer's minimum weight-per-square-foot requirement has been met for attics insulated with loose-fill mineral-fiber insulation. Verification shall be determined using the manufacturer's recommended number of bags and bag weight to achieve the correct installed R-value for the given ceiling square-foot area, or using Technical Bulletin #17 from the Insulation Contractor's Association of America (ICAA). When verification is shown using Technical Bulletin #17, o~~O~~ne sample shall be taken in the area that appears to have the least amount of insulation. The rater shall record the weight-per-square-foot of the sample on the CF-4R."

"The HERS rater shall verify that the manufacturer's minimum weight-per-square-foot requirement and insulation thickness has been installed for attics insulated with cellulose insulation. Verification shall be determined using the manufacturer's recommended number of bags and bag weight to achieve the correct installed R-value for the given ceiling square-foot area, or using Technical Bulletin #17 from the Insulation Contractor's Association of America (ICAA). When verification is shown using Technical Bulletin #17, one sample shall be taken in the area that appears to have the least amount of insulation. The rater shall record the weight-per-square-foot of the sample on the CF-4R. For cellulose insulation this verification shall take into account the time that has elapsed since the insulation was installed. If the insulation has been in place less than seven days, the insulation shall be within ½ inch of the manufacturer's minimum required thickness at the time of installation (or greater). If the insulation has been in place for seven days or longer, the manufacturer's minimum required settled thickness (or greater) shall be in place."

- ***Residential ACM Manual***

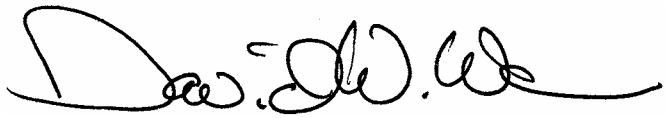
1. 4. Required Modeling Assumptions and Algorithms; 4.8.5 Diagnostic Supply Duct Location, Surface Area and R-factor—Buried Attic Ducts

   Recommendation: Should this compliance method become widely used there will be no easy way the homeowner can provide maintenance to the duct system over time; or more importantly, burying ducts prohibits sealing of the duct system at a later time. Hence, it's important to insure all opportunities for minimizing the need to access these ducts is provided. Specifically, this section should include a requirement that the ducts be sealed as a prerequisite to allowing the credit. Delete and add the following language:

   "The portions of duct runs directly on or within 3.5 inches of the ceiling gypsum board and surrounded with blown ceiling attic insulation of R-30 or greater in houses meeting the criteria for High Insulation Quality (ACM RQ) and Procedures for Field Verification and Diagnostic Testing of Air Distribution Systems (ACM RC) may take credit for effective duct insulation as shown in Table R4-12….Duct segments deeply buried in lowered areas of ceiling and covered by at least 3.5" of insulation may claim effective insulation ~~of R-25 for fiberglass insulation and R-31 for cellulose insulation~~ specified from Table R4-12 Buried Duct Effective R-values."

Owens Corning and the North American Insulation Manufacturer's Association (NAIMA) have worked diligently with staff to insure these proposed changes are equitable to all parties and I trust you will view my comments and recommended changes to the Express Terms as a constructive effort to maintain that goal.

Sincerely,



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